



Sage Notes

Newsletter of the Idaho Native Plant Society • Promoting Interest in Idaho's Native Flora

Southwest Idaho's Flora Goes Global:

The SWITCH Digitization Project

By Alexa DiNicola, SRP Botanical Database Supervisor

Every discipline needs its primary sources. Journalists interview the people actually involved in events, and transcribe the results; geologists examine actual rock formations, and catalogue small pieces for later study; and botanists study the living plants themselves, and record them for later in the form of herbarium specimens. Each specimen is a plant (or several smaller ones, or part of a large one), pressed flat, dried, and mounted on paper. That may not sound like much, but a sizeable herbarium may have tens of thousands, even millions of specimens – and in the aggregate, they're powerful. Botanists use them to identify plants, get DNA samples, and reconstruct whole vanished ecosystems. They're also useful to ecologists, zoologists, anthropologists, archaeologists, geologists, materials scientists... and anyone who's ever been curious about plants.

Until recently, though, hardly anyone outside academia and professional scientists even knew that herbaria existed, much less

how to access and use them. Even scientists had trouble getting the right data from the right places. Fortunately, the digital revolution has changed all that: herbaria all over the world have started digitizing their collections, creating searchable databases full of high-resolution photographs and specimen data. Once a herbarium puts its database online, anyone, anywhere, can dive into its wealth of botanical information: all it takes is a browser and an Internet connection.

In southwest Idaho, the drive to digitize took the form of a project called SWITCH (SouthWest Idaho: The Comprehensive Herbarium). It began in 2011, with the goal of bringing its region's best collections to the Internet and the wider world; four years and over 160,000 specimens later, it will finish this July. The databases SWITCH has built are already making quite a splash: they're a powerful resource for everyone from professional scientists to doctors, policymakers, firefighters, teachers, Master Naturalists, citizen scientists, landscapers, and plant lovers of all stripes. The data's all free. It's all out there. First, I'll tell a bit about the project itself; then I'll explain how to use it.

As sources of plant data over space and time, herbarium specimens can make any study richer. In southwest Idaho, though, the best and broadest herbarium collections are spread out across a number of small institutions, so much that even the professionals tend to overlook them. When the herbaria at the College of Idaho (CIC) and Boise State

In this Issue:

SWITCH Digitization Project	1
Letter from the President	2
Annual Meeting	3
Malheur Prince's Plume	6
Three Early INPS Field Trips	8
Milkvetch and Mustards of the Tetons	10
Botany Puzzle	11
Idaho Mystery Plant	11
Great Places to See Idaho Wildflowers	14
Book Reviews	15
New Publications.....	16
Chapter News	17

(Continued on page 4)

Letter From The President

Dear Idaho Native Plant Society Members,

With this issue, Sage Notes takes on a different appearance with a new masthead. Our editor, Michael Mancuso, approached Alexa DiNicola with the idea of doing a masthead for Sage Notes. She volunteered to do it and spent many hours developing the design. What a great job she did! The masthead contains drawings of many of the native plants of Idaho. Alexa deserves a big "thank you" for all the time and work put into the project.

This is the last time I will be writing the President's Message. After the annual meeting a new president will lead the Idaho Native Plant Society (INPS). It has been an honor and privilege to serve as your president. During my term as president I have met and worked with many outstanding individuals. I am very impressed with the dedication and hard work of the many individuals that make INPS a well-functioning organization. As I think of the work that Alexa volunteered to do for Sage Notes, it makes me contemplate the work of the many other people volunteering their time for INPS. I think of the dedication of the Chapter officers, who spend so much time preparing for chapter meetings, field trips, and assuring that all functions of the chapters are taken care of. They also serve on the INPS Board of Directors. I have seen the dedication and hard work of the members of our various committees, whose work is often not seen by most members of our society, yet whose functions within the organization are so important. Also imagine the hours it takes to edit and publish Sage Notes, to handle all of the memberships, to host the annual meeting, to organize the rare plant conference, to comment on issues that directly affect native plants, to administer the ERIG program and to make our website meaningful. Finally I recognize and appreciate the hard work and hours spent for INPS by your elected officers. INPS is an organization run entirely by volunteers and to be effective we need the help and dedication of many different individuals with many different talents. Getting as many members as possible involved with the many tasks of our Society is the only way we have and will continue to function effectively. Please don't hesitate to share your time and talents with us.

I hope to see you at our annual meeting in the Tetons in July.

LaMar N. Orton
President,
Idaho Native Plant Society

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From the Editor: Colorful New Look For Sage Notes

After a few months being editor, I thought a new masthead was in order to add a bit more spark to the Sage Notes cover page. I approached Pahove Chapter member Alexa DiNicola about her willingness to design the new masthead – and fortunately for all of us, she enthusiastically agreed. For those of you who do not know Alexa, she is a woman of multiple talents. In addition to being a gifted illustrator, she has a beautiful singing voice, is very tech savvy, and is a dang good botanist to boot. Alexa had just finished her BS in Botany at Ohio State University in August 2011 when she received a call from Don Mansfield (College of Idaho) and Jim Smith (Boise State University) interviewing her for a position based at The College of Idaho to be the Database Supervisor on the then new SWITCH (Southwest Idaho: The Comprehensive Herbaria) grant project. Alexa got the job, and four years later has nearly completed the task of overseeing the digitization of the vascular plant and lichen collections at The College of Idaho and Boise State University, in addition to several nearby agency collections (see Alexa's article about the SWITCH project in this Sage Notes issue). With a job well done, Alexa leaves for the University of Wisconsin-Madison in Fall 2015 to begin a PhD program in botany. During the past four years Alexa has been an active participant in the Idaho Native Plant Society, including a leadership role in the Idaho Rare Plant Working Group. We will miss Alexa for her ready smile and contributions to Idaho botany. Hopefully, she'll find her way back to the Gem State before too long. In the meantime, we can all enjoy her artwork on the front page of each Sage Notes issue. Thank you Alexa.

INPS Annual Meeting – Two Sides Of The Tetons

A reminder that the INPS annual statewide meeting is scheduled for July 10–13, 2015. Full details for the meeting, including a copy of the registration form, and contacts to answer questions and provide additional information were included in the previous (March, 2015) issue of Sage Notes. The meeting will be based out of the Driggs area, with the Teton Mountains providing a spectacular botanical venue. This year's meeting represents a joint venture with the Wyoming Native Plant Society and will allow participants to make new friends and catch up with old friends. An exciting itinerary of field trip options have been arranged for each day.

You can register for the meeting no later than June 15 at idahonativeplants.org/statewide-annual-meeting/ or by mailing in the registration form along with payment. Please check the registration page on the website before you mail in a reservation to ensure your field trip choices are still available. We

may not be able to accommodate everyone's first choices. Also check the website for plant lists and maps as these items will most likely not be handed out at the meeting. And remember – the Tetons make their own weather and summer thunderstorms are common – be prepared. Hope to see you all in the Tetons.



Teton Mountains. Photo by Michael Mancuso.

Idaho Botanical Foray

Save the Date! The 8th Annual Idaho Botanical Foray will be held in the Selway River drainage of the Nez Perce-Clearwater National Forest from June 18–22, 2015. We look forward to exploring the early season flora of our northern Idaho disjunct temperate rainforest, and contributing new collections from this amazing ecosystem. We will be camping at the O'Hara Bar Campground, located only a few miles up the Selway River from the confluence with the Lochsa on Hwy 12. This is a pretty well developed and popular campground situated among the cedars; it has vault toilets and water. For more detailed information about camping and logistics, check out the Foray's Facebook page (www.facebook.com/pages/Idaho-Botanical-Foray/1407997042780698) or contact Dr. David Tank (dtank@uidaho.edu) at the University of Idaho.

(Continued from page 1)

University (SRP) looked to address the problem, digitization was the obvious solution. In 2011, CIC and SRP together landed a National Science Foundation grant to digitize their collections; the project, SWITCH, was off the ground and running by the end of the year.

Fortunately, we didn't have to reinvent the wheel. The Consortium

with the herbaria's existing databases. For any specimens without preexisting database records, our student staff used PNWHerbaria's web applications to type in the label data and make it searchable.

When enough specimens were finished, in about a year, we went live on the PNW Herbaria public portal. For the first time, the databases we'd been building were

available to the public, and the public promptly started using them. People from across the USA and beyond – Europe, Japan, China, India, South Africa, Kenya, Pakistan, Paraguay, the middle of Siberia, and many more – started using our data. Suddenly, our relatively-inaccessible

specimens were serving botanists all over the world.

Since then, we've continued our work, steadily adding more and more specimens to the databases. We've completely digitized the CIC and SRP collections, and are now adding eight other small herbaria from BLM and Forest Service offices across southwest Idaho. By the end of July, the project will be complete: we will have added over 160,000 specimens to the PNWHerbaria portal, inviting the world into the wonders of our flora.

You, too, are invited to use SWITCH's data. It's easy to access; here's how.

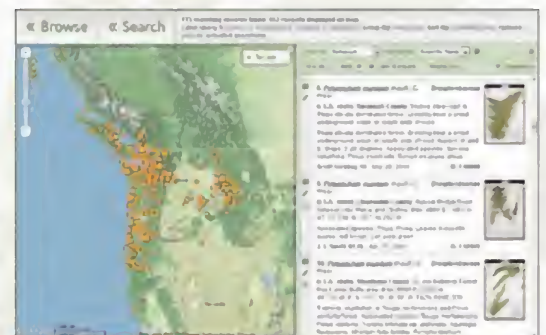
First, go to pnwherbaria.org and click the map marked "Search the database" (at right). In the page that appears (pnwherbaria.org/data/search.php), type your search terms: fill out the "Scientific Name"

field if you want to search by Latin name, for example, or "Collection Year" to search by the year a specimen was collected. By default, the portal searches for the exact contents of a field: use the percent sign (%) as a wildcard to get partial matches, or use any of the search operators that are listed below the map.

There are two ways to search by location. One is to type a state, city, county, etc. into the appropriate field. The other, which is more flexible, is to click "Create Polygon" above the map on the right, then draw the boundaries of your search area.

The other options on the search page let you narrow your results and specify how they'll be retrieved. The check-box list of herbaria allows you to add or delete whole collections from the search results. The search options determine how your results will be sorted on the page, as well as letting you narrow the search to only those specimens with images (not all the herbaria in the Consortium have photographed their collections) or include specimens of human-cultivated plants. The options under "Retrieve Results As" give

Search the database:



you a few different format choices, in case you'd rather download the results than view them online.

When your search is formatted to your satisfaction, click the large green "Search" button. Unless you've specified a different retrieval method, the results page will appear, with your results mapped on



McKayla Stevens collects plants to preserve as herbarium specimens at the 2014 Idaho Botanical Foray.

of Pacific Northwest Herbaria (PNWHerbaria) at the University of Washington had already developed a sophisticated imaging system, a suite of purpose-built software, and a set of powerful databases. SWITCH partnered with PNWHerbaria, using their designs and their databases in exchange for expanding their southwest-Idaho coverage.

Using the system that CPNWH designed – a high-end digital camera mounted on a photography lightbox – we started to photograph each and every specimen in our collections. It wasn't quite as simple a process as it sounds: each specimen's identification and taxonomy had to be checked before imaging, and some needed physical repairs as well. A few hundred at a time, the completed photos were uploaded to our databases on the PNWHerbaria servers, where they were automatically linked up



Sandelle Shaw uses one of SRP's lightboxes to photograph herbarium specimens. Photo by Alexa DiNicola.

one specimen (bigger dots represent more than one); click on it to see the data from the list, as well as the image if it's available.

Sometimes, you may get red rectangles instead of orange dots on the map, and some or all of the lists may not give the full details ("locality and coordinates withheld"). This is

the left and listed on the right. Each dot on the map represents at least the portal's way of protecting rare and endangered plants: to see the

full data, you'll need to contact either the Consortium itself (pnwherbaria.org/contacts.php) or the collections manager at the herbarium that holds the actual specimens.

We hope you'll find your own way into SWITCH's data. Whether you're a professional botanist, a Master Naturalist, a gardener, a doctor, a landscaper, a restoration worker, an enthusiast, or just plain curious, the database is meant for you. Happy botanizing!

For more information, contact Don Mansfield (dmansfield@collegeofidaho.edu) or Jim Smith (jfsmith@boisestate.edu).

Milkweeds and Monarchs

By Caroline Morris, Pahove Chapter

On Endangered Species Day, Friday, May 15, 2015, two 4th Grade classes at Boise's Lowell Elementary School each planted four showy milkweed (*Asclepias speciosa*) to enhance potential habitat for luring Monarch Butterflies to the school's existing garden. The Pahove Chapter donated these milkweed plants, and a member also donated a bag of compost and other pollinator-friendly native plants, including red-yellow blanketflowers (*Gaillardia aristata*) and taper-leaved penstemon (*Penstemon attenuatus*). Everything was enthusiastically put into the ground after some serious weed removal. The students and several "garden parents" are responsible for nurturing the plants. This hectic 45-minute start for the milkweed in Lowell's butterfly garden we hope will be promising.

Before this planting, the students saw the gorgeous eight minute video, "Monarchs & Milkweed, Yosemite Nature Notes" (www.youtube.com/watch?v=V3jpu2th34o&feature=youtu.be). Pahove member Caroline Morris spoke briefly, with accompanying posters, about native plants and their benefits for many pollinators. The two 4th grade teachers both received the new U.S. Fish and Wildlife Service wildflower coloring book (idahonativeplants.org/wildflower-coloring-book/), the splendid new Idaho Native Plant Fandeck, and the U.S. Forest Service brochure, "Attracting Pollinators to Your Garden Using Native Plants" (www.fs.fed.us/wildflowers/pollinators/documents/AttractingPollinatorsV5.pdf).



Malheur Prince's Plume – A Desert Beauty

By Valerie Ray, Pahove Chapter

Malheur prince's plume (*Stanleya confertiflora*) is a striking plant species endemic to the sage-



Malheur prince's plume, yellow flowers.
Photo by Michael Mancuso.

brush zones of southwest Idaho and southeast Oregon. It has been described as "spectacularly showy," "enigmatic," and "stunning." In the mustard family (Brassicaceae), Malheur prince's plume is often visible from a distance due to its relatively large size, showy inflorescence, and the fact that it grows on contrasting clay soil types that stand out from surrounding areas. Despite this visibility, Malheur prince's plume is rarely encountered. This rarity has led the species to be of conservation concern and the focus of monitoring and research studies.

Truly a "prince's plume," *S. confertiflora*'s dramatic appearance comes from the combination of the bluish cast of its foliage and the beautifully colored, dense raceme

atop its tall stem. A tap-rooted biennial, it forms loose rosettes of glabrous and glaucous, somewhat fleshy, entire leaves. The rosettes vary greatly in size, but can reach about 35 cm in diameter. A population with numerous rosettes can resemble a cabbage patch. Stems are 20–80 cm tall with auriculate and glaucous leaves that grow progressively smaller up the stem. Flowers and sepals are ivory white, creamy white, or lemon yellow. The four petals are slightly larger than the sepals, and the spreading fruits have an obvious stipe at the base of the 2–6 cm long silique. The raceme is indeterminate and may be branched.

A particularly interesting aspect of the plant is flower color variation, which varies by population. It is generally thought that eastern popula-

tions are yellow and western populations are whitish. This has not been studied across the species range, however, and the overlap of the two color morphs is puzzling. Malheur prince's plume is unique, but old skeletons of thickstemmed wild cabbage (*Caulanthus crassicaulis*), another mustard family member, may appear similar to old Malheur prince's plume stems. Bushy prince's plume (*Stanleya pinnata*) and green prince's plume (*Stanleya viridiflora*), which overlap in range with Malheur prince's plume, are perennial.

In Idaho, Malheur prince's plume is known from 8 occurrences in northern Owyhee County, south-

ern Washington County near Weiser, and an outlying population in the Bennett Hills area in Gooding County. There is also a recent report from Payette County. All Idaho occurrences are on BLM or private land. Populations in Oregon extend from near the eastern base of the Steen's Mountains, north to near Unity and east to the Vale area.

While Malheur prince's plume occurs in intact or degraded big sagebrush (*Artemisia tridentata*) habitat in Oregon, Idaho populations can also be found in salt desert shrub (e.g., *Atriplex canescens*, *Atriplex confertifolia*), buckwheat species (*Eriogonum* sp.), or low sagebrush (*Artemisia arbuscula*) communities. Associated native species may include MacBride's cleomella (*Cleomella macbrideana*), whitestem blazing star (*Mentzelia albicaulis*), annual buckwheats (*Eriogonum* sp.), Cusick's sunflower (*Helianthus*



Malheur prince's plume, cream flowers.
Photo by Michael Mancuso.

cusickii), green rabbitbrush (*Ericameria nauseosa*), and Indian ricegrass (*Oryzopsis hymenoides*). Co-occurring weedy, introduced species may include cheatgrass

(*Bromus tectorum*), Japanese brome (*Bromus japonicus*), clasping pepperweed (*Lepidium perfoliatum*), hoary whitetop (*Lepidium draba*), and bur buttercup (*Ceratocephala testiculata*).

In Idaho, Malheur prince's plume is strictly limited to clay soil. These soils can be derived from a variety of parent material and often stand out from surrounding areas due to their lack of vegetation. Often colorful, the soils can be off-white, tan, brown, even orange and yellow. They often become deeply cracked as they dry out through the summer. In Oregon, a few populations are found on sites that do not have this obvious, contrasting clay soil, at least at the surface. Aspect and slope vary considerably, with most Idaho occurrences found on north- or northeast-facing slopes. Some Oregon occurrences are found on flat ground in openings of big sagebrush.

Robert Meinke (Plant Conservation Biology Program, Oregon Department of Agriculture) has studied Malheur prince's plume in Oregon since 2000. His research has included population monitoring and life history studies, among other aspects of the plant's biology and ecology. These studies have shown Malheur prince's plume to be a fascinating species. Called a "winter biennial," seeds germinate in late fall after a cold period. Seeds can germinate in light or dark. The juvenile plant will overwinter and continue to grow, storing energy in a large taproot the following spring and summer. It then goes dormant until the following spring when it will bolt into a reproductive plant, flower, produce seed, and die. Flowering occurs in May and June. Pollination biology is unknown, though numerous insect visitors have been observed. A mature Malheur prince's plume plant can produce thousands of seeds. The longevity of the seed bank remains unknown. Meinke's studies

have also shown that rainfall can have a big impact on the overall reproductive success of Malheur prince's plume, with average to above-average rainfall being good for all age classes. Also, juvenile size directly correlated with reproductive success. Larger juveniles produced more fruits and presumably more seed. Malheur prince's plume is also monitored in Idaho. In 2005, the BLM and Idaho Natural Heritage Program established a monitoring program with the objective of quantifying long-term trends in population size, habitat conditions, and disturbances.

The range-wide Nature-Serve conservation status for Malheur prince's plume is G2, indicating the species is imperiled globally and vulnerable to extinction. Its S1 ranking in Idaho indicates the species is critically imperiled and especially vulnerable to extinction in the state. It is an S2 in Oregon. The BLM considers Malheur prince's plume a Type 2 special status species, meaning it is a globally rare species of high endangerment with a high likelihood of being federally listed in the foreseeable future. Idaho occurrence reports indicate that threats or disturbances at individual locations include weed invasion, trampling of habitat or plants by cattle, herbivory of reproductive plants by cattle, illegal OHV use, and habitat conversion to annual grasses. One Owyhee County occurrence is in a fenced enclosure.


The likelihood of seeing this plant on a trip to the Owyhees, the Bennett Hills or the Weiser area is

hard to predict. Malheur prince's plume's biennial nature and its dependence on precipitation at just the right times makes for a complex life history. In addition, there are many aspects we don't know about its biology and ecology. Some years seem "good", but the plants fail to appear. Threats to popula-



Malheur prince's plume, first year rosette.
Photo by Michael Mancuso

tions and habitat further complicate the ability to get to know it. It is a lucky day indeed to see this elusive and eye-catching plant during a trip to our beautiful Idaho deserts.



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Back in the Day – Recounting Three Early INPS Field Trips

By Lynda Smithman, Pahove Chapter

Bennett Hills, April 1978

Passers-by on Highway 20 may have wondered about the odd caravan stopped along the edge of the road. In the lead there was BEEP

lected plants while stationed at Fort Boise in the 1880s. Our timing was perfect for observing large numbers of Sandhill cranes in the Hill City area on the Camas Prairie. Pat acquainted us with Cusick's Primrose

home the Toll Station Cafe was open and we all enjoyed delicious hamburgers there. This historic cafe, located in the narrow pass between the Mountain Home desert and the ascent into Camas Prairie, closed permanently shortly thereafter.



BEEP and field trip participants (left to right) Billie Ann Farley, Lynda Smithman, Carol Prentice, and Mary Trail. Photo courtesy Jay and Lynda Smithman

(Biological Extra-urban Excursionary Putt-putt), Pat Packard's Dodge pop-top camper-van named by her students who traveled with her on many field trips. BEEP was followed by Jon Trail's bathtub-shaped red classic Porsche and Smithmans' yellow CJ-5 Jeep. Pat Packard and Carol Prentice were co-leaders. [Carol recently interviewed her classmates for help deciphering the BEEP acronym and provided additional details for this article.] Pat was interested in tracking Cusick's primrose (*Primula cusickiana*) which habituated muddy areas in the sagebrush desert, and its relationship to Wilcox primrose (*P. wilcoxiana*) found on grassy north-facing slopes (this latter entity is no longer recognized as a discrete species). The Wilcox primrose was named for Major T.E. Wilcox, an army surgeon who col-

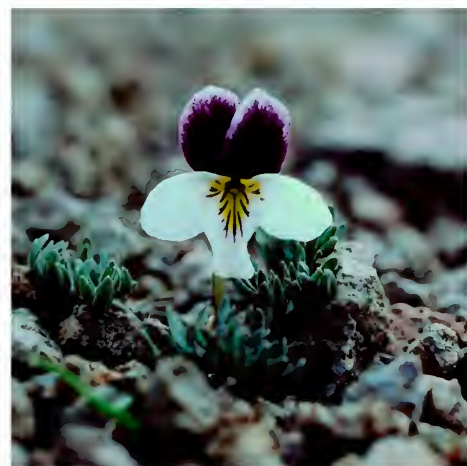
growing along the edge of the highway. Ruth Colpin's notes indicated that we also saw Douglas' draba (*Draba douglasii*), Beckwith's violet (*Viola beckwithii*) and Owyhee sagebrush (*Artemisia papposa*). Lynda and Jay Smithman were fascinated with the deep-pink petals of Anderson's buttercup (*Ranunculus andersonii*) which they had only seen with white flowers in Owyhee County.

Carol as botanist/biologist for Idaho Department of Fish and Game had spent considerable time in the Bennett Hills studying winter range conditions (with both Barbara Ertter and Jim Grimes as part of her crew). She had hoped all of us could visit nearby petroglyphs, but the road was so muddy four-wheel drive was necessary. That eliminated most of the group. But all of us found to our surprise on the way

Hells Canyon, April 1979

Bob Steele was our leader for this scenic spring field trip. He was followed by Pat Packard and her guests riding in the pop-up camper van, BEEP. Gordon and Barbara Pierce were next in their classic VW van (nicknamed Vonnegut Van). Their passengers included Ruth Colpin, Jay and Lynda Smithman. Mary Trail, her brother Jon and his photography club friend Bob Brown brought up the rear.

On the first stop Bob introduced us to Dutchman's breeches (*Dicentra cucullaria*). Further into the canyon we encountered Bartonberry (*Rubus bartonianus*). According to Bob, this Hells Canyon endemic shrub eluded recognition by botanists for years as it blooms early and later in the season is easily mistaken for one the many currants (*Ribes*) growing in the area. Nevada greasewood (now known as *Glossopetalon spinescens*)



Beckwith's violet. Photo courtesy Jay and Lynda Smithman

caught our attention, as in Hells Canyon it is much larger than its Owyhee County counterpart. One of Pat's guests kept picking flowers at every stop. Pat, embarrassed but feeling awkward, asked Lynda to politely tell the guest that this was inappropriate on a botanical field trip. Fortunately the guest was not offended and enthusiastically joined us on many more field trips.



Mary Trail. Photo courtesy Jay and Lynda Smithman.

For those participants who could withstand a vertigo inducing canyon-side trail, Bob treated us to a view of an ancient Pacific Yew (*Taxus brevifolia*). This was not for the faint-of-heart as we had to cross a raging stream and boulder hop with our arms in the air to avoid rattlesnake bites.

Willow Creek in Payette County, May 1980

Pat Packard had asked Jon Trail who was familiar with the Payette area to lead the trip. Little did we know that on this memorable day, Mount St. Helens would erupt.

Our focus was the Whitewooly buckwheat (*Eriogonum ochrocephalum*). We were hoping to relocate the site of an early John Henry Christ collection of this plant believed to have been from somewhere in Canyon County.

Since his specimens had been collected prior to detailed maps, perhaps the site was really in Payette County. Likely-looking hillsides had been observed in the Willow Creek area. Those in attendance were Pat Packard, Jim Grimes, Mary Trail, Jay Smithman, Jo Adcock & her son Jerry. [Lynda was on her way to Lewiston with Jo's husband Ron to present a workshop there where they were inundated that afternoon with Mount St. Helen's ash.] While hiking uphill beside Jim, Mary stumbled. Jim wryly commented that he now understood why Lynda and Mary were such good friends.

No Whitewooly buckwheats were found that day, but Pat noticed and collected an unusual milkvetch (*Astragalus*). Neither she nor Jim Grimes could properly identify it using manuals and comparative material in the Tucker Herbarium at the College of Idaho. Jim, employed at that time by New York Botanical Garden and



Whitewooly buckwheat. Photo by Michael Mancuso

working with the Intermountain Flora, took the *Astragalus* specimen to New York for the legume specialist, Rupert Barneby, to examine. Barneby determined this plant was a new variety and named it Packard's milkvetch (*Astragalus cusickii* var. *packardiae*) in honor of Dr. Pat Packard. Future work on this species found it to be one of the rarest members of the Idaho flora and the target of multiple conservation activities.

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High and Mighty: Milkvetch and Mustards of the Tetons

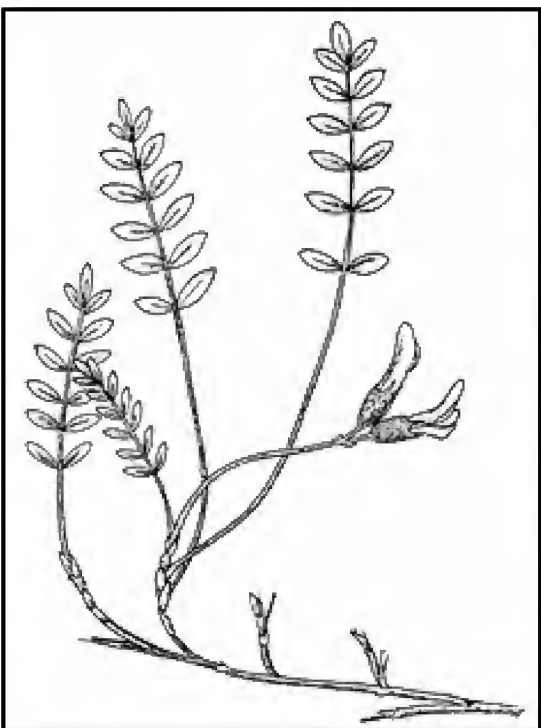
By Bonnie Heidel, Lead Botanist, UW Wyoming Natural Diversity Database

Editors Note: A nearly identical version of this article originally appeared in the May 2015 issue (Vol. 34 No. 2) of *Castilleja*, the newsletter of the Wyoming Native Plant Society.

The towering Teton Range holds more than a few botanical surprises, including state and regional endemic plants. Three of the hikes offered in the 2015 annual meeting enter or approach the subalpine and alpine zones of these profiled plants.

Shultz's milkvetch (*Astragalus molybdenus* ssp. *shultziorum*, syn. *A. shultziorum*; Bean Family) is endemic to west-central Wyoming, adorning the Teton, Salt River and Wind River ranges. Its closest kin are far-flung relatives in central Colorado and northwestern Montana.

Arid regions in western North America are one of three global centers of distribution for the milkvetch genus (*Astragalus*). Shultz's milkvetch has a combination of morphological characteristics that ally it to the Old World milkvetches, while showing every chromosome and genetics characteristic that places it solidly in a New World clade, with two other similar-looking, high elevation milkvetch taxa (Lavin and Marriott 1997). In the best of botanical sleuthing, a battery of analyses involving chromosome counts, cpDNA

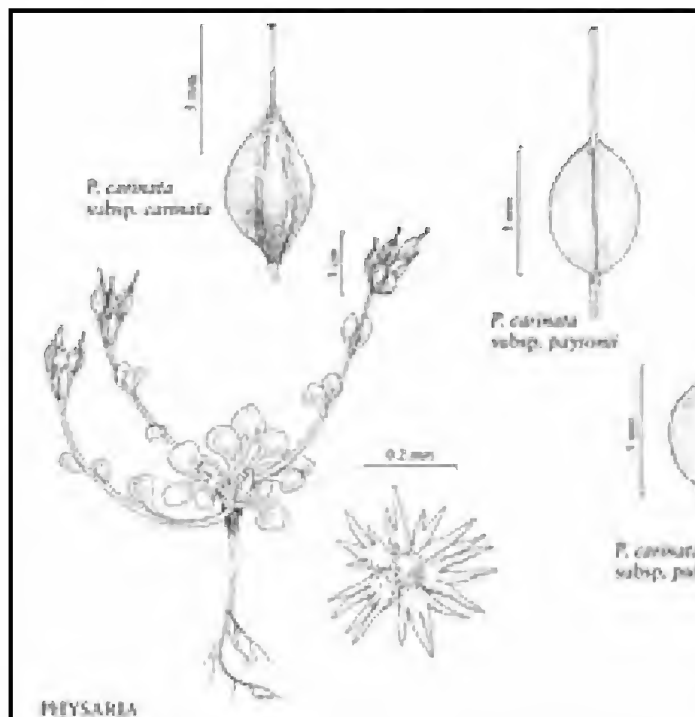


Astragalus shultziorum by Walter Fertig

grows on rocky, calcareous soils from 8800–11,500 ft (Marriott 1990, Mancuso and Heidel 2008).

Compared to the milkvetches, closest kin in the bladderpods (Mustard Family) have converged on the

and morphological traits were run that elevated Shultz's milkvetch to full species. No matter its relation, Shultz's milkvetch is a Wyoming species of concern, possessing predominantly white flowers, small seeds, and reduced inflorescences and leaflets. It



Physaria carinata ssp. *carinata* and *P. c.* ssp. *paysonii*, From: O'Kane, S. L. 2010. *Physaria*. Pages 616–665 in *Flora of North America Editorial Committee, editor. Flora of North America North of Mexico. Vol. 7. Magnoliophyta: Salicaceae to Brassicaceae. Oxford University Press, New York, NY.*

Tetons. Keeled bladderpod (*Lesquerella carinata*; syn. *Physaria carinata* ssp. *carinata*) and Payson's bladderpod (*L. paysonii*; syn. *P. carinata* ssp. *paysonii*) are regional endemics of Idaho and Wyoming, the former more common in Idaho and the latter more common in Wyoming, with their distributions overlapping in the Tetons. They both occupy calcareous ridges and slopes, and were thought to occupy different elevation zones in the Teton Range. Reports of the "low elevation" keeled bladderpod at high elevations were corroborated in surveys of the past decade (Mancuso and Heidel 2008).

Taxonomic work coupled with revisionary treatments now align them as subspecies of *Physaria carinata* (O'Kane 2007; see also: *Castilleja* 29(3) and 31 (3)) along with a Montana bladderpod. The two Teton taxa have similar elliptic fruit shape differing by presence/absence of the fruit keel. Both are state species of concern in Idaho and Wyoming, while the latter is also a USFS Region 4 sensitive species. Some vouchers in the Tetons are only known from flowering material, and as noted by O'Kane (2007): "Differences

in fruit morphology become blurred and the three subspecies are often indistinguishable where their ranges meet near the intersection of Idaho, Montana, and Wyoming.”

We won’t let the perils and pitfalls of taxonomy keep us from pursuit of the mustard duo in our field-trip quests. The high and mighty are calling, even if we need to kneel to fathom them!

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Idaho Mystery Plant

This photo was taken by Rose Lehman (INPS, Upper Snake Chapter) in the Teton Mountains, Idaho. This low-statured, but showy wildflower is one you may encounter on a high elevation field trip during the July annual meeting. What is your guess? The answer will be revealed in the next edition of *Sage Notes*.

The Idaho Mystery Plant in the March 2015 issue was rock-fringe, also called rose willow-herb (*Epilobium obcordatum*) in the evening-primrose family. It occurs in open, rocky, subalpine to alpine habitats from the Sierras in California eastward to the mountains of central Idaho. Have an Idaho Mystery Plant to share? Send it in to the Sage Notes editor: sage-editor@idahonativeplants.org.

—M. Mancuso

Botany Puzzle – Let’s Get Hairy

This Word Search puzzle tests your knowledge of descriptive terms used for the many kinds of plant pubescence. Can you find 10 botanical hair types hidden in the puzzle? Examples not in the puzzle include scabrous and tomentose. Puzzle answers are on page 19.

T	F	B	A	R	B	E	L	L	A	T	E	S	T	P
R	L	E	N	I	W	E	S	O	L	I	P	I	H	P
A	O	T	U	R	O	F	T	P	A	U	J	V	E	Y
K	C	A	F	F	A	N	E	V	I	N	T	I	T	O
I	C	H	I	P	I	G	L	A	N	D	U	L	A	R
N	O	N	E	T	A	I	L	I	C	H	I	L	N	S
A	S	I	T	S	T	O	A	T	R	E	B	O	A	M
D	E	N	A	Y	P	A	T	I	D	I	N	U	L	S
M	C	A	N	E	S	C	E	N	T	R	U	S	T	O
O	R	G	N	I	D	A	N	H	I	R	S	U	T	E

Pleasant Hill Farm



Doug & Pat Mason

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Great Places to See Idaho Wildflowers

By Lynn Kinter, Botanist, Idaho Natural Heritage Program, Idaho Department of Fish and Game

Idaho has many wonderful places to see wildflowers. The previous issue of Sage Notes included a list of choice wildflower viewing areas that peak during the spring or early summer seasons. This issue has wildflower hotspots with peak colors during the heart of summer (later than mid-June most years). Here are a few favorites of mine and my colleagues (Derek Antonelli, Sue Birnbaum, Alexia Cochrane, Wendy Hoffman, Juanita Lichthardt, Dave Lingle, Jennifer Miller, Chris Murphy, Marilyn Olsen, Kristen Pekas, Kyra Povirk, Beth Waterbury, and Ross Winton).

Also, Deniz Aygen, Idaho Department of Fish and Game, and I are putting together a brochure or booklet of spectacular wildflower viewing sites based on input from INPS members and others. Over the past year, we received nearly 30 recommendations, but would like to have more. If you have a site to nominate please fill out the form on page 14 and submit it to Deniz at deniz.aygen@idfg.idaho.gov.

Site	County	Peak	Showy species sampler
Bloomington Lake	Bear Lake	late Jun-Jul	Parry's primrose, alplily, mountain sorrel, penstemon, death camas, columbine, bluebells
Crystal Lake	Benewah	Jul-Aug	Piper's golden buckwheat, pleated gentian, elephanthead, bush penstemon, pearly everlasting, trillium, ladyfern
Bogus Basin & Mores Mountain	Boise	mid-Jun-Aug	biscuitroot, serviceberry, penstemon, paintbrush, buckwheat, gilia, wooly sunflower, horsemint
Scott Mountain Lookout	Boise	late Jun-mid-Jul	balsamroot, paintbrush, penstemon, bluebells, onion, buckwheat
Boulder Meadows	Boundary	mid-Jul-early Aug	beargrass, elephanthead, paintbrush
Roman Nose Lakes	Boundary	Jul-Aug	Cascade azalea, beargrass, columbine, alpine laurel, penstemon, fireweed, elephanthead, mountain sorrel
Wells Summit, north of Fairfield	Camas	Jul	balsamroot, buckwheat, lupine, paintbrush, penstemon, prairiesmoke, phacelia
Mount Harrison	Cassia	mid-late Jul	paintbrush, penstemon, sticky geranium, lupine, yarrow
Keg Springs Road	Clark/Fremont	mid-Jul-early Aug	paintbrush, lupine, small sunflower, mariposa lily, geranium, larkspur, wild hollyhock, aster, groundsel, fleabane
Stanley Basin	Custer	late Jun-Jul	elephanthead, camas, gentian, green gentian, monkey-flower, penstemon, bistort, groundsel
Trinity Lakes & Trinity Peak	Elmore	mid-Jun-Jul	scarlet gilia, phlox, sugarbowl, peony, penstemon, larkspur, shooting star, elephanthead, corydalis, yarrow
House Mountain	Elmore	mid-Jun-mid-Jul	balsamroot, buckwheat, lupine, biscuitroot, currant, scarlet gilia, mountain trumpet, monkshood, paintbrush
Harriman State Park	Fremont	late Jun-Jul	mules ears, blue-eyed grass, mariposa lily, lupine, purple marshlocks, monkshood, elephanthead, gentian,
Sawtell Peak	Fremont	Jul-Aug	columbine, mariposa lily, paintbrush, Easter daisy, small sunflower
Heaven's Gate Lookout	Idaho	Jul	lupine, phlox, penstemon, buckwheat, stonecrop, paintbrush, phacelia, iris, trillium, arnica, trout lily
Ship Island Lake, Bighorn Crags	Lemhi	mid-Jul-early Aug	penstemon, paintbrush, spirea, elephanthead, shooting star, bistort, western Labrador tea, gentian
18-mile Wilderness Study Area	Lemhi	late Jun-late Jul	elephanthead, marsh marigold, phlox, cutleaf daisy, shooting star, cinquefoil, penstemon, sky pilot, yellowbells

Site	County	Peak	Showy species sampler
Lemhi Pass	Lemhi	mid-Jun-late Jul	glacier lily, fritillary, bluebells, lupine, cinquefoil, sandwort, draba, fleabane
Grandmother Mountain	Shoshone	Jul	beargrass, buckwheat, paintbrush, penstemon, sandwort, lupine
Coal Creek	Shoshone	May-Jul	baneberry, pipsissewa, claspleaf twistedstalk, western swordfern, American rockbrake
Fern Falls & Shadow Falls	Shoshone	Jun-Jul	arnica, wild ginger, bride's bonnet, twinberry honeysuckle, Wilcox's penstemon, western featherbells, fireweed
Revett Lake	Shoshone	late Jun-Aug	beargrass, Pacific trillium, rose meadowsweet, sidebells wintergreen, purple monkeyflower, syringa, pinedrops
Stevens Lakes	Shoshone	mid-Jun-Aug	northern licorice-root, pleated gentian, Jacob's-ladder, fringed grass of Parnassus, Piper's anemone, lousewort
Bear Valley	Valley	mid-Jun-Jul	camas, mules ears, groundsel, elephant head, shooting star, penstemon, bistort, lupine, cinquefoil
Snowbank Mountain	Valley	late Jun-Jul	lupine, paintbrush, phlox, shooting star, penstemon, spring beauty, sandwort, bluebells



Lupine at Mount Harrison. Photo by Lynn Kinter.



Balsamroot, penstemon, and paintbrush at Scott Mountain. Photo by Lynn Kinter.

Idaho Wildflower Site Information Form

Site name/area/location		
Nearest city	County	Type of access (e.g. good gravel road, hiking trail, etc.)
Land ownership (e.g. public, private, public/private mix, unknown)		Latitude/Longitude or GPS coordinates (optional)
Peak bloom time		
Showy wildflower species present (if known)		
Other interesting features in vicinity (e.g. camping, hot springs, recreation opportunities, etc.)		
Directions to site (please include relevant maps and physical site address if applicable)		
Do you have photos of the site you could share? Even if the photos aren't "publication quality", we could use them to identify plants at the site. Please label and credit each photo then attach them to an email or put them on a CD.		

Wildflower Site Location:

Primary Site Contact / Partner Information:

Name	E-mail
Mailing Address	Phone

Additional Contacts / People Knowledgeable About Site:

Name	Phone	E-mail
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Infrastructure: does the site have any of the following?

(check if present)

	Description
<input type="checkbox"/> Parking	<hr/>
<input type="checkbox"/> Restrooms	<hr/>
<input type="checkbox"/> Trails	<hr/>
<input type="checkbox"/> Campgrounds	<hr/>
<input type="checkbox"/> Picnic Areas	<hr/>
<input type="checkbox"/> Observation structures	<hr/>
<input type="checkbox"/> Visitor Center	<hr/>
<input type="checkbox"/> Interpretive materials	<hr/>

Book Review

Princeton Field Guides: Trees of Western North America

Richard Spellenberg, Christopher J. Earle, and Gil Nelson

Illustrations by David More, edited by Amy K. Hughes

Copyright 2014, Princeton University Press, U.S. retail price: \$29.95

Trees of Western North America is a comprehensive, well-illustrated, and easy-to-use field guide that covers 630 species—all

users with identification.

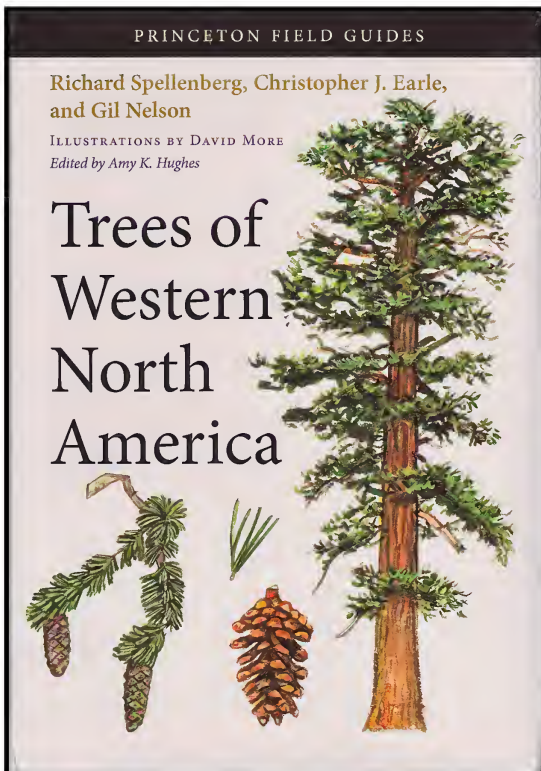
Defining trees broadly, the book covers many small, overlooked species normally thought of as shrubs, as well as treelike forms of cacti and yuccas. Sections introducing each family and genus are followed by species descriptions which include scientific and common names, range maps, “Quick ID” summaries, and a user-friendly layout. Details of size, shape, growth habit, bark, leaves, flowers, fruit, flowering and fruiting times, habitat, and range are interesting and easy to read.

There is also information on the most recently naturalized species and the latest taxonomy.

For example, I was shocked to read that according to

on hawthorns (*Crataegus*): “The fruits are the ‘haws,’ tracing back to very old European words referring to ‘hedge’ or ‘pasture.’ Cultivated forms are prized ornamentals because of the showy spring bloom and the clusters of small red or purple pomes in autumn. Some may persist in plantings or around old homesteads...”

And here’s something about a species of sycamore I bet you didn’t know: “The anomalous *P. kerrii* from Laos, differs from other *Platanus* in its evergreen elliptic, pinately veined leaves, the petiole not surrounding the bud. Betulinic acid is processed from its bark and is being explored for its medicinal properties, which include facilitating healing, reducing inflammation, and

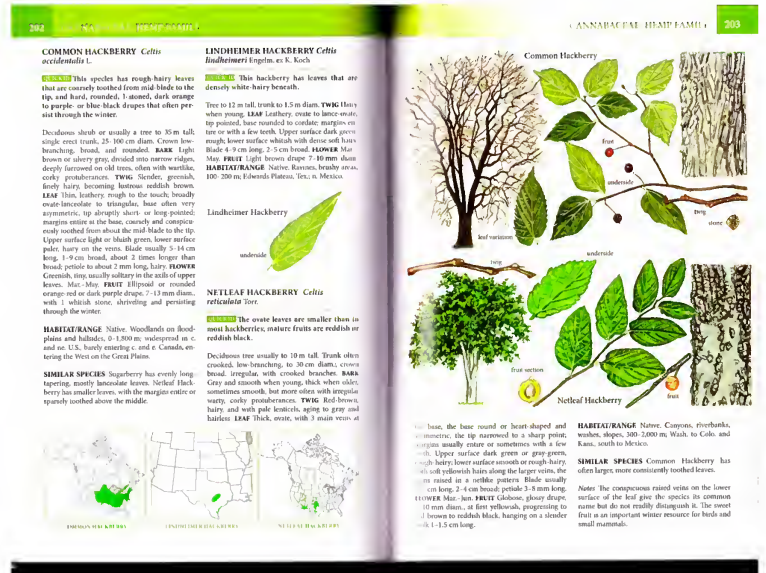


of the native and naturalized trees of the western United States and Canada as far east as the Great Plains. The book’s descriptions are thorough enough to interest professional botanists but easy enough for amateur naturalists to understand. Each entry includes excellent, specially-commissioned color paintings of the tree, its bark, foliage and fruits by illustrator David More.

The book’s introduction offers brief sections on taxonomy and names, gymnosperms and angiosperms, tree biology, and forest structure. While it does not have the dichotomous key some of you serious botanists might want, this field guide does have a key to leaves that I’m sure will help many

recent molecular studies, the genus *Celtis*, which includes the netleaf hackberry (*C. reticulata*) I came to know and love during my years working in Hells Canyon, may actually belong in the hemp family (Cannabaceae) instead of the elm family (Ulmaceae), as has long been thought.

As an interpretive naturalist, I particularly appreciate the interesting discussions of the natural and cultural history included. Here’s a random example from the section



potential anti-cancer properties.” Granted, a Laotian sycamore is so far west it’s really an “eastern” tree, but you have to admit that’s an interesting bit of trivia.

Or how about this on the Great Basin bristlecone pine (*Pinus longae*): This pine of the desert mountains is widely known as the

(Continued on page 16)

(Continued from page 15)

longest-lived tree in the world; hundreds of individual trees are known to exceed ages of 3,000 years, and the oldest tree known is more than 5,000 years old. Researchers studying bristlecone pine DNA have learned that the trees have unique adaptations to long life, but they also live in a very cold, dry environment that does not support the pests and diseases that afflict trees on warmer, wetter sites, and they live in forests that are essentially fireproof because the trees are widely spaced and there is no undergrowth. Traditionally the main

hazard to bristlecones was lightning strikes, which can kill individual trees, but now whole stands are threatened by climate change, which is forcing them to migrate upward to cooler elevations. For a tree that grows on mountaintops, a warming climate is a death sentence."

OK, so maybe you knew that... but for naturalists and other educators that want to get people really interested in botany, this kind of "back story" is invaluable. This is the type of entry that goes beyond just identifying and describing a species to answering the important

question interpreters want their audiences to understand, what we call the "so what?" I love this kind of stuff!

My conclusion is that anyone interested in trees, from serious botanists to curious naturalists, will appreciate this volume's breadth and depth and find it to be a useful addition to their libraries. It's a little heavy to be carrying everywhere I go, but it's definitely a reference I'll be checking when I get back to my car or home to learn more about the tree species in this neck of the woods.

—Jane Rohling, *Pahove Chapter*

New Publications

Grasses of Idaho

Compiled by Karl E. Holte

An updated key to the Grasses section of *The Flora of Idaho*, originally published by Dr. Ray J. Davis in 1952, has recently been published. The new publication, entitled *A Nomenclatural Revision of Ray J. Davis' Flora of Idaho Poaceae (Gramineae) Including New Additions and Revised Keys*, was compiled by Karl E. Holte, Curator Emeritus of the Ray J. Davis Herbarium and Professor Emeritus of Botany at Idaho State University; Bruce P. Ronald, Professor Emeritus of Chemistry at Idaho State University; and James M. Glennon, Botanist at the Bureau of Land Management High Desert District, Rock Springs, Wyoming. This 102-page key includes a total of 115 taxonomic changes plus many recent additions to the known Idaho Poaceae, representing a 69%

change from the original work, and nomenclatural modernization. The keys are accompanied by a comprehensive alphabetized list of all Idaho grasses with their current taxonomic status and common name, and an alphabetized list of grasses not yet documented to be in Idaho but which occur in counties adjacent to Idaho.

This work consists of two nomenclaturally updated dichotomous keys, first an updated Key to Genera with cross-referencing, then the updated Key to Species which incorporates additional cross-referencing so that old species and subspecies names readily correlate to their new names. The Davis basic key structure was retained to facilitate usage by those intimately familiar with its style. The book is 8.5" x 11", soft cover, plastic-comb-

bound so that the pages will lie flat for ease in referring to the keys while handling a plant or using a microscope.

The Idaho Museum of Natural History sponsored the publication of this work and has copies for sale at \$17.99. All profits from the sales will be donated to the Ray J. Davis Herbarium, which is located in the Idaho Museum of Natural History on the Idaho State University campus. The mailing address is 921 S. 8th Ave., Stop 8096, Pocatello, Idaho 83209-8096; and the telephone number is (208) 282-3168. Contact Dr. Karl Holte, (208) 241-8358, plantprof@live.com; or Jim Glennon, (307) 389-1118, wybteny@live.com, for questions about the content or format of the revised keys.

North Fork of the Clearwater River

Fred Rabe

Fred Rabe, University of Idaho Professor Emeritus and longtime INPS and Friends of the Clearwater member, has recently published *North Fork: Glimpses of geography and natural history of roadless areas in the North Fork Clearwater River Watershed*. To obtain a copy (\$10 plus \$5 shipping), contact Friends of the Clearwater at www.friendsoftheclearwater.org. You can also contact this Moscow-based organization at (208) 882-9755.

Book Review

Hidden Gems of the Western United States

Daniel Gillaspia

Kindle Edition (there is no paper version)

This book covers over 130 hidden gems found in the Western United States – from Texas Big Bend Country to California beaches, to Idaho's City of Rocks National Reserve and Mesa Falls, to the Sinks Canyon State Park and Vedauwoo in Wyoming. Each of the sites has photos – some amazingly stunning. In addition to geology, special environments, nearby destinations, photographic hints, one can find trail descriptions, hours, admission prices and pet policies. There are not many maps, as the visitor will want more detailed directions before heading into some of the more remote areas – but each state included does have a map showing relative locations of the state's sites for general planning. Each of the sites may send you to the Internet for more information.

Probably a third of the sites mention wildflowers seen along trails or impressive flora displays in spring or after rains, but scientific names are not included and only the more common wildflowers are mentioned by name. A visit would require a field guide or at least an internet search before the visit for flora of the site.

This is an eBook, Kindle edition. I didn't have Kindle on my iPad but it was a free app so I downloaded it and immediately downloaded the book's approximately 730 pages. I had incentive to do so, as the au-

thor had notified me that one of my photos from the Leslie Gulch field trip at the 2013 Annual Meeting was included – yes Leslie Gulch and the Owyhee Canyonlands is one of the Oregon sites.

Because it is an eBook it is inexpensive and 25% of the profits from sales will be donated to the National Park Foundation for programs which help children gain access to National Parks. It is a large book, but is organized in such a way that an armchair (or bed) reader could read a chapter at a time or a traveler could simply go directly to the chapter for the destination to be visited. My husband and I had travelled to a few of the sites, but many we had visited when we lived nearby and learned of the area special to locals – such as Vedauwoo near Laramie where our children and their friends loved to climb the rocks. There are definitely other sites we will want to explore and photograph on our future trips in the west.

Leslie Gulch photos from the Annual Meeting can be seen on Flickr at www.flickr.com/photos/31703394@N08/sets/72157634924320998. But while you are there do a search on everyone's uploads for Leslie Gulch and see some truly incredible photos of this rarely visited gem.

—Nancy Miller, *White Pine Chapter*

INPS Chapter News

CALYPSO CHAPTER

In conjunction with the Native Plant Appreciation Week, the Calypso Chapter took a hike around Tubbs Hill in Coeur d'Alene on Saturday, May 2. We had beautiful weather, had several new friends join our group, saw many spectacular spring flowers, and only got lost once.

Upcoming Field Trips and Other Events:

June 6: Q'emiln Trails hike followed by potluck at Asbells'. Meet at trailhead in Post Falls at 10:00 am. Park is just south of the Spokane River on Spokane Street. Take the first right after crossing the river and follow the road to the end.

June 28: Plant hike in the area of Benard Peak. Meet at the Hayden Walmart at the northeast corner of parking lot at 9 am to carpool.

August 8: Plant hike to Harrison or Beehive Lakes. Meet at the Hayden Walmart at the northeast corner of parking lot at 8 am to carpool.

October 7: chapter meeting will be held at 7:00 pm at the Idaho Fish and Game Office at 2885 W. Kathleen Avenue, Coeur d'Alene. The topic of the presentation is still to be determined.

For more information contact: Derek Antonelli, antonelli8@frontier.com

LOASA CHAPTER

All members and the public are welcome to attend chapter events.

When: Meetings are held the third Thursday of each month.

Where: Taylor Building, Room 258, College of Southern Idaho, Twin Falls

Contact: Kelvin Jones, (208) 886-7051

PAHOVE CHAPTER

When: Meetings are held on the 2nd Tuesday of each month from September – April at 7 pm. Information is sent to members via postcard and email.

Events are also posted on the Pahove Chapter page of the INPS website: idahonativeplants.org/local-chapters/pahove/

Where: Meetings are usually held at the MK Nature Center Auditorium, 600 S. Walnut St, Boise
Contact: For more information about Pahove Chapter activities visit the INPS website or email Karie Pappani at pahove.chapter.president@gmail.com

Summer 2015: Pahove is planning an **Alternative Turf Tour** in the Boise area in June or July for members, featuring less water-demanding ways to flat-cover yards than the standard green lawn grass species. We'll look at thyme and other groundcover yards, as well as xeric-planted landscapes. Members will receive details by email, and further information will be available on the website.

2015 Native Plant Sale: The Pahove Chapter of the Idaho Native Plant Society & the MK Nature Center celebrated our Idaho State Insect, the Monarch Butterfly, and other native pollinators during our 2015 Native Plant Sale on April 24th and 25th. For the first time in years, area gardeners reported several sightings of



Pahove Native Plant Sale. Photo by Susan Ziebarth.

Monarchs in 2014. This year we featured showy milkweed (*Asclepias speciosa*) because our state insect and other native pollinators are dependent on this native plant group. We offered a wide variety of wildlife friendly plants well adapted to the Treasure Valley's soil and climate. New species offered this year included limber pine (*Pinus flexilis*), threadleaf fleabane (*Erigeron filifolius*), thymeleaf buckwheat (*Eriogonum thymoides*), one-flowered Helianthella (*Helianthella uniflora*), swamp milkweed (*Asclepias incarnata*), and mountain huckleberry (*Vaccinium membranaceum*).

Our partner, the MK Nature Center, also celebrated their 25th anniversary over the same weekend, so there were lots of fun activities and games for kids

and for adults, live bird demonstrations, music, and tasty food and drink from on site vendors.

THANK YOU to our knowledgeable botanists, plant enthusiasts, and Master Naturalists who volunteered to make our plant sale a success. Our plant sale this year was even better than last year because of you. Special thanks to board member, Susan Ziebarth. Susan has played a pivotal role in our annual plant sale for many years, working tirelessly to help it be the successful event that it is. This year she developed a very effective new form for tracking new and renewal memberships purchased during the sale. It proved to be a big improvement compared to the previous 2 years sorting membership dues money vs. plant sales. Other chapters may want to try it. Contact Karie Pappani, Pahove President, for a digital or paper copy.

Proceeds from the plant sale go towards grant funding for schools and other organizations to install native plant demonstration gardens, restoration projects, native plant related publications and educational materials, plant workshops, the Rare Plant Conference, use of the MK Nature Center venue, chapter supplies, photo contest prizes, and many other uses.

SAWABI CHAPTER

Sawabi Chapter offers at least one evening and one Saturday trip each month From May to September. The public is always invited. If you would like to join us on a trip, contact the Holtes at ardy-sholte@cablone.net, (208) 232-6563, or Grant Thomas at thomasgm60@outlook.com, (208) 237-5317 for more information.

Upcoming Field Trips:

June 8: Ruth Moorhead will lead a plant walk at Justice Park Campground on Scout Mountain.

June 13: Bob McCoy will lead a day trip to the East Fork of Mink Creek.

June 15: Geoff Hogander will be plant guide for Porcelain Pot and Corral Creek.

June 22: Marijana Dolson and Grant Thomas will lead an exploration of the flora of Inman Canyon.

June 27: Mel Nicholls and Grant Thomas will guide a Saturday day trip up the West Fork of Mink Creek.

July 18: Grant Thomas will lead a day trip featuring high elevation plants at Big Meadows.

August 3: Karl Holte will guide us through the riparian area of McCammon Pond.

August 8: Karl Holte will lead a day trip to Mesa Falls and Sawtell Peak.

Sept. 19: Sawabi will celebrate an end-of-the-field-trip season in Goodenough Canyon. Ruth Moorhead will lead the hike among fall colors and flora. The hike will be followed by a chili potluck.

UPPER SNAKE CHAPTER

No summer activities are planned at this time.

Contact: Sue Braastad, braastads@yahoo.com.

WHITE PINE CHAPTER

When: Meetings are held once a month during the spring and fall. Field trips occur most any month. Please check the chapter website at www.whitepineinps.org for events which may be scheduled or finalized after *Sage Notes* is printed; or email the chapter officers at whitepine.chapter@gmail.com.

Where: Generally at the 1912 Center, 412 East Third St., Moscow (between Adams and Van Buren)

Contact: INPS, White Pine Chapter, PO Box 8481, Moscow, ID 83843 or whitepine.chapter@gmail.com.

Winter 2015 presentations:

On January 8, Pam Brunfeldt, Instructor in Systematic Botany at the University of Idaho presented "Fun Facts about Plants", a talk co-sponsored by the Palouse Prairie Foundation. Pam's gift as an educator shone brightly, keeping a large audience engaged and entertained as she presented botany for fun and adventure. Two memorable examples she discussed included two different kind of corpse flowers. The gigantic corpse flower (*Amorphophallus titanum*) is a native of Sumatra. Pam showed pictures of one blooming in a U.S. botanical garden to great fanfare because of the rarity of such blooms. The odor attracts flies which serve as pollinators for the plant. Also presented were pictures of *Rafflesia arnoldii*, a parasitic corpse flower from Malaysia. Even though *Rafflesia* has no roots or leaves, it still produces a bright red flower up to 4 feet across. The talk raised awareness of the magic and diversity rarely recognized in our natural environment.

Brenda Erhardt, Resource Conservation Planner for the Latah Soil and Water Conservation District, presented a 2-part talk on February 24. Her topics were "The Value of Common Weedy Native Plants" and "Fire's Effects on a Local Prairie Remnant Location." In our quest for beauty and the rare or unusual, the value of the common and weedy members of our native floral community are often overlooked. With concern regarding increased fire activity in the West, studying the effect of fire on the flora of a Palouse Prairie Remnant was also beneficial. Although the fire was not initiated by the Latah Soil and Water Conservation District, they were invited to study plant community relationships before and after a prescribed burn done by another agency. Information from the study will benefit understanding the role of fire in man-

aging these rare and valuable natural communities. Pamela Pavek graced a joint meeting of the Palouse Prairie Foundation and Whitepine Chapter on March 12 with a presentation "Attracting Native Invertebrate Pollinators With Palouse Prairie Plants." Pamela, with the USDA-NRCS Plant Materials Center in Pullman, Washington, consistently demonstrates a deep and extensive working knowledge of our native plants. The talk helped all attendees better understand the status of our pollinators. The talk also generated a great discussion afterwards through a barrage of questions patiently answered by Pamela. The talk made obvious Pamela's commitment to success of our local pollinators and the plant communities upon which they depend. Thank you, Pamela!

Dr. David Tank, Associate Professor of Biology, University of Idaho, and Director of the Stillinger Herbarium honored the chapter March 24 with a presentation "Natural history collections in the 21st century: an update on Stillinger Herbarium activities and how you can get involved." The topic included details of collaborative efforts with The Consortium of Pacific Northwest Herbaria and its online portal to information about the regional flora. He outlined potential opportunities to assist with digitization of plant collection data, and also included a snapshot of work done with a graduate student, on weed populations with genome sequencing from the San Juan Islands. Dr. Tank was an informative and knowledgeable speaker, and gracious in answering a wide range of questions from basic curiosity to the highly technical. His calling in higher education was ably demonstrated through his extreme patience with his announcer's attempts to pronounce "Systematist".

WOOD RIVER CHAPTER

Contact: Carol Blackburn, blackburncrl@yahoo.com for information on activities.

Botany Puzzle (page 11) answers: barbellate, canescent, ciliate, floccose, glandular, hirsute, lanate, pilose, stellate, villous



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